BDCP RDEIR/SDEIS Review Document Comment Form

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Page	Line #	Comment
1-8	5-6	The Preferred Alternative is identified as Alternative 4A. Because EPA was provided with roughly a week to review the full ASDEIS, we have focused our review on BOR's Preferred Alternative, and, specifically, on certain impacts of that alternative that we previously commented on. Given the extraordinarily limited review period, we were unable to conduct a thorough review of the ASDEIS, therefore, our comments at this time should not be considered as final or all-encompassing. EPA may comment further on the same and other matters following a review of the SDEIS. Our rating of the SDEIS will be based on the Preferred Alternative.
1-1	NA	Missing: Larger context about CA Water Action Plan, Sec 7 process, State Water Resources Control Board Water Quality Control Plan, Prop 1, and how this BDCP project complements an overall state solution for climate change and adaptation and a declining estuary.
1-2	18	The Corps may or may not be able to use portions of this EIS for their permits. This sentence would be more accurate if it said "intended to cover" rather than "would cover."
1-7	21	Include the Purpose and Need statement in the SDEIS.
2-12	7-12	In the short time allowed for review of the Administrative Draft, we were not able to review the revised mitigation measure for adverse effects of bromide increases at the drinking water intake at Barker Slough. The ASDEIS still identifies increases in bromide as a significant adverse impact.
1-7	23-25	Section "Role of the Bureau" was moved to Section 1.1.5 but remains blank. It is important to explain BOR's role as the lead federal agency.

4-5	NA	This list should include San Joaquin River inflow/export ratio. This is included in the 4H operational scenario but not in the list describing 4A.
4.3.4-19	10-15	Long-term average water quality degradation with respect to chloride in the Delta will have adverse effects on municipal and industrial users. Modeling for the Preferred Alternative shows that the western Delta would become saltier relative to the NEPA baseline as a result of the operations under that Alternative. Increasing salinity will cause adverse effects on M&I beneficial uses through reduced opportunity for diversion of water with acceptable chloride levels. The SDEIS should address this issue. We note that this conclusion has changed in the Administrative Draft, and it is no longer characterized as an "adverse" issue. The basis for this change is not clear to EPA.
NA	NA	The water quality degradation and loss of assimilative capacity described for Alternative 4A will be relevant for the Corps' future CWA 404(b)(1) analysis. The Corps will need to identify and permit the Least Environmentally Damaging Practicable Alternative (LEDPA) that minimizes impacts to Waters of the US and water quality in the impacted waters.
4-131	11-12	The statement that Early Long Term (2025) analyses are equal to Late Long Term (2060) analyses is not supported in the document. EPA recommends that the SDEIS include further discussion to support this statement.
4-132; 4-134	5-6; 12-14	Operations under Alternative 4A are estimated to cause an increase in the number of days the Prisoners Point salinity objective will be violated relative to the No Action Alternative (17-20% increase in violation days, Table EC-1, and supplemental modeling for Alt 4A, p. B-42). The EC objective optimizes protection for striped bass spawning, however it also indirectly provides protection for other beneficial uses. These ancillary benefits should be recognized in any discussion about beneficial use protection provided at this compliance point.

4-134	NA	Sensitivity analyses (Appendix 8H, Attachments 1 and 2) show that the predicted increases in violation days are attributable to Alternative 4A operations and they are not the result of model artifact or tidal marsh restoration. Sensitivity analyses also show that magnitude of exceedance at Prisoners Point is approximately 1.5 times the standard. Mitigation options, such as additional freshwater, are available, but not proposed. DWR and Reclamation have not exceeded the Prisoners Point standard in the last twenty years (Table ## Summary of Compliance with Delta 1 EC Objectives (1995-2014), Appendix A, Chapter 8, page 8-16).
4-216; 4-218	27-28; 18-21	The conclusion for AQUA-5 changes from Draft from "not determined" to "no effect" here. NEPA effects determinations should be based on the criteria and applied uniformly in the analyses.
NA	NA	Impacts to year-round X2 salinity standard still not evaluated.
NA	NA	The SDEIS should explain the criteria and specific reasons for changing aquatic life impacts that were "not determined" in the DEIS to "not adverse" in the ASDEIS for Alternative 4A and other non-HCP alternatives.
NA	NA	Alternative 4A does not propose project operations that would result in significantly more freshwater outflow through the Delta than is representative of the system today. Proposing Delta outflow conditions would maintain current conditions is inconsistent with broad scientific agreement, reflected in EPA's Delta Action Plan, that existing freshwater flow conditions in the San Francisco Estuary are insufficient to protect the aquatic ecosystem and multiple fish species, and that both increased freshwater flows and aquatic habitat restoration are needed to restore ecosystem processes in the Bay Delta and protect native and migratory fish populations. We understand that the Preferred Alternative does propose additional spring outflow, however, this small increase is not substantially different than current outflow management in the estuary.
GEN		We did not have time to review the analysis of Alternative 2D (5 intakes) and Alternative 5A (1 intake). The operations for these alternatives, as well as all the other Alternatives, should be optimized in the same way they were for Alternative 4 as we recommended for the other Alternatives in our DEIS comments. We have also been told that additional information is being prepared related to Alternative 8 per the State Board's recommendation. New information related to this alternative should be incorporated in the Supplemental DEIS since it is likely that the State Board will be using information from this EIS/EIR for the Change in Point of Diversion application.

8H-2	15-16	Why was the commitment that appeared only in the DEIS Appendix 8H that "DWR and USBR have every intention of meeting D-1641 standards" removed? It appears in redline strikeout on page 8H-2. We continue to recommend that a commitment to meet all water quality objectives in D-1641 be included in Section 4.
4-191	28-31	Overall comment: EPA recommends an expanded discussion of how modeling rules and assumptions do not match the narrative description of the proposed project but instead establish high and low boundaries around the project description. This is relevant for four large discrepancies in the modeling that are different in the proposed project from what was actually modeled including the differences between Early Long Term (2025)and Late Long Term (2060) in the sensitivity analyses, the difference between 25,000 acres and 8,000 of tidal habitat restoration, the difference in acreages of Yolo Bypass floodplain restoration, and moving the salinity compliance point from Emmaton to Three Mile Slough.
4-214; 4-226; 4-134	16-17; 19-25; all	Impact AQUA-22 could support an Adverse NEPA Effects determination. Alternative 4A operations span a range including lower and higher spring Delta outflow requirements, relative to the No Action Alternative. The low end of the Delta outflow range is estimated to result in a reduction of longfin smelt (LFS) abundance. The high end of the outflow range is predicted to result in small (3-6%) LFS abundance increases, on average; however, those increases are based on a comparison to future declining conditions.
4-228		EPA recommends expanding the declining baseline discussion pursuant to our DEIS comments and Technical Meeting #1. Alternative 4A longfin smelt (LFS) abundance continues to decline relative to the Existing Conditions baseline. Delta outflow is reduced in April, May, and June which is half of the spring time spawning period (January – June) (Table 11-4A-9, page 4-228). LFS abundance is estimated to decline between 7-20%, up to 22% in some water years, relative to existing conditions. LFS abundance indices are very low today. The fact that LFS abundance will decrease relative to current LFS abundance needs to be clarified in the document, since existing conditions and impacts from implementing the No Action must be fully evaluated in an EIS.
4-229	41-44	Mitigation 22d is undefined and defers mitigation decisions to the Biological Opinion. If the Biological Opinion will not be ready until after the FEIS, how will this mitigation measure ensure that this impact will be mitigated to below adverse impact? EPA recommends additional details, such as checkpoints, be provided to further expand this mitigation measure. The SDEIS should identify measures that could mitigate the impacts from the project.
4-249	NA	Is there a NEPA Effects determination for winter run migration? This should be included in the SDEIS.

GEN		Freshwater flow through the Delta proposed by the Preferred Alternative is unlikely to protect aquatic life beneficial uses, since Alternative 4A does not propose project operations that would result in significantly more freshwater outflow through the Delta. The SDEIS should clearly explain what pieces of information were relied upon to support modifying the NEPA Effects determinations for aquatic species that were formerly "not determined" and are now "not adverse." Many of these impact determinations hinge on the outcome of the Section 7 consultation process and real time operations, which are still in development. We need to understand the primary reasons for the "not adverse" determinations, and those reasons should be made clear in the SDEIS.
NA	NA	We could not locate a summary of all NEPA effects determinations made for each Alternative. We encourage BOR to include such a summary in the SDEIS.
4-215	31-44	The fall abiotic habitat analysis done for Alternative 4 in the DEIS assumed that 25K acres of tidal marsh habitat would be present in the estuary at the ELT (2025). The water quality analysis and subsequent sensitivity analyses in the Administrative Draft show that the presence and placement of tidal marsh habitat restoration changes the salinity gradient and X2 in the Delta. The new definition of Alternative 4A includes ~9K acres of tidal marsh restoration, 16K less than what was modeled, which could change the Delta smelt fall abiotic habitat analysis. This should be addressed in the SDEIS.
NA	NA	What will happen to the sediment collected at the new North Delta diversion intakes? We could not find the plan/analysis; this should be included in the SDEIS.
GEN		Thank you for providing more context describing how NEPA effects determinations were made for impacts to fish species. It is still unclear in the text of the NEPA effects determinations in the fish chapter (DS, LFS, WR, SR, GS, and FR) how the NEPA significance criteria (copied below from pages 11-213 and 214) were used in combination with the multiple indicator analyses provided.

4-243		It is important to be clear in the SDEIS that spawning habitat and egg incubation habitat conditions for winter run Chinook salmon are estimated to substantially deteriorate in the future. Comparisons to the future NEPA baseline are intended to isolate the portion of habitat deterioration that is attributable to Alternative 4A. The NEPA comparison may identify small benefits or losses to habitat conditions that are the result of Alternative 4A, but habitat conditions for winter run spawning and egg incubation will be substantially worse in the future. The Chinook Salmon Winter-Run spawning analysis shows that habitat for spawning and egg incubation is substantially reduced between the Existing Conditions baseline and Alternative 4A. Mean monthly flows in the Sacramento River between Keswick Dam and Red Bluff Diversion Dam during the spawning season (May – September) are reduced by 5% – 25% in two (August and September) of the five months of the spawning season of drier water year types (below normal, dry, and critical).[1] Mean monthly temperatures in the Sacramento River increase to levels near or exceeding recommended temperature maximums[2] of ~ 56 degrees F for egg incubation and fry emergence in August and September of most water year types. The number of days exceeding 56 degrees F in the Sacramento River at Bend Bridge under Alternative 4A increases by 60% - 100% relative to existing conditions, see Table 11-4A-16, page 4-239. The number of years characterized as having "good" spawning habitat and egg incubation habitat under Alternative 4A decrease by 9% and 21%, respectively, while the number of years with higher risk of red dewatering appears to increase under Alternative 4 compared to existing conditions.[3]

[1] See Tables B.7-1 through B.7-4, pages B-137 – B-144 in Appendix B Supplemental Modeling for Alternative 4A.

[2] See Table 11-4A-13, page 4-237 of Section 4 Alternative 4A, for NMFS recommended maximum water temperature criteria for winter and spring run spawning and egg incubation (56 degrees F at Bend Bridge May – September). See also EPA Region 10 EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards, Table 3, page 25 for the Maximum 7 Day Average of the Daily Maximum (7DADM) temperature criteria of 55 degrees F to protect Salmon/Trout Spawning, Egg Incubation, and Fry Emergence.

[3] See Table 5C.5.2-30, page 5C.5.2-61, of Appendix 5C in the Draft HCP for BDCP. "Alternative 4A" in these tables is represented by the range between the EOS/H3 and HOS/H4 operational scenarios.

4-243		Impact AQUA-40: The winter run spawning and egg incubation could support an "adverse" NEPA effects determination instead of the stated "not adverse" determination. There are several indicators that suggest a substantial reduction in winter run spawning and egg incubation habitat relative to the NEPA baseline. Mean monthly flows at Keswick and Red Bluff are estimated to decline 9-15% in August (dry years) and September (BN, D, and C years), the last two months of the spawning season. "Good" years of available spawning habitat are reduced by 9% and "poor" years for redd dewatering increase by 11%. Substantially reducing habitat is one of the stated significance criteria that indicate an "adverse rating" in Chapter 11 (pages 213-214). The "not adverse" determination appears to be based, in part, on the concept that the winter run chinook population is so low that spawning and egg incubation habitat are not limiting the winter run population and that Alternative 4A will continue to comply with the NMFS BO. This is not consistent with the doubling goal, which is a water quality standard in the WQCP. In 2009, NMFS concluded that "the long-term operations of the CVP and SWP are likely to jeopardize the continued existence of Sacramento River winter-run Chinook salmon" in 2009 and "The long-term operations of the CVP and SWP are likely to destroy or adversely modify critical habitat for Sacramento River winter-run Chinook salmon," (page 575 of 2009 BO). The Alternative 4A analysis predicts additional habitat losses beyond those that contributed to the 2009 winter run jeopardy conclusion and the RPAs that allow the projects to continue to operate. Additional habitat losses are adverse impacts.
4-243		Impact AQUA-40: The NEPA temperature analysis should acknowledge that temperatures are expected to approach and exceed maximum thresholds for egg incubation. Temperatures in the Sacramento River at Keswick are expected to approach or exceed recommended criteria for egg incubation (EPA: 55 degrees F and NMFS: 56 degrees F) near the end of the spawning season (August – September) in dry years. Temperatures in the Sacramento River at Bend Bridge from May – August are expected to be at or to exceed the EPA recommended maximum temperature for egg incubation and fry emergence (55 degrees F) and the NMFS stated criteria for spawning and egg incubation (65 degrees F). August and September have temperatures that exceed these criteria by almost ten degrees. In addition, the analysis should acknowledge that temperature guidance uses a shorter averaging period- one week- than does the model, which uses one month. Monthly average temperatures that are near or exceed weekly maximum temperature guidance underestimate the impact of temperature on egg incubation because the averaging period masks the highest temperatures.

4-246		AQUA 41: Sacramento River flows between Keswick and Red Bluff Diversion Dam (Tables B.7-1 to B.7-4 in 4A Supplemental Modeling appendix) seem to be significantly lower than they are now for most of the rearing season, August – December, in the H3 scenario. This is not recognized in the effects determination as a substantially poorer habitat condition for rearing. Impact AQUA 41 shows that monthly average river temperatures at Keswick and Bend Bridge are at or exceed the recommended 61 degree (7DADM) temperature for salmon rearing in August and September of dry and critical years for the H3 and H4 scenarios. This seems like a substantially poorer habitat condition in these months of dry years.
4-249		The winter run juvenile migration analysis (AQUA-42) suggests that impacts to migration through the Delta could be adverse. There is substantial uncertainty and range in estimated impacts of predation (0.3% to 12% annual production loss) and habitat loss at the new intake structures. The three intake structures and associated permanent bankline modifications would result in a permanent loss of up to 13.7 acres of aquatic habitat and the permanent modification of 2.6 miles of shoreline along the migration route. Estimates don't vary much between Existing Conditions and NEPA baselines or the H3 and H4 scenarios, but the changes are identified as survival losses under Alternative 4A. In addition, modifications to No Action Alternative and Alternative 4 (flow diverted into Yolo Bypass, hydraulic changes at channel divergences that occur when No Action Alternative now contains 8,000 acres of tidal marsh habitat, and 4A ELT does not contain 25,000 acres tidal marsh habitat) increase the uncertainty in the analysis. The "not adverse" NEPA effects determination for 4A impacts to winter run migration seems to rely on identifying biological criteria for operating the new Delta diversion, but those criteria have not yet been developed and agreed upon by NMFS and are not fully articulated in the Administrative Draft.
4-257		It is important for the SDEIS to articulate that winter-run migration conditions (decreased flow, increased temperature) in the Sacramento River upstream of the Delta are estimated to substantially deteriorate in the future. Comparisons to the future no action condition are intended to isolate the portion of habitat deterioration that is attributable to Alternative 4A, but future migration habitat conditions will be substantially worse than they are today for WR Chinook.
11-94		Why is the Low Salinity Zone considered a non-covered community? The location of the spring-time (Feb to June) LSZ is part of the critical habitat designation for Delta Smelt and is discussed extensively in the FWS OCAP Biological Opinion along with Fall X2.

11-94		For many years, EPA has identified that a broad analysis of how the LSZ and overall salinity gradient is modified as a result of Alternative 4A is missing from the aquatic habitat analysis. EPA recommended adding an analysis of year-round X2 changes for each alternative. This section appears to have been updated in response to that comment as it now includes an enhanced discussion of X2 and LSZ habitat, scientific support for X2-abundance relationships, and uncertainties in these relationships. The additional information is helpful background, but it does not provide the analysis EPA previously requested. Evaluating how the salinity gradient is adjusted in the estuary provides a broad indication of how the ecosystem will change as a result of the proposed project, increased water demand and deliveries, and climate change. The location of X2/LSZ is strongly influenced by freshwater flow through the Delta (past Chipps Island). A new impact category, AQUA 218, of Alternative 4 impacts on downstream bays was added, however, it does not provide the requested analysis.
11-95	4-42	Explain the rationale and basis for selecting 15% as a significance threshold for flows.
11-95	4-42	Exceedance of temperature thresholds was used for spawning egg incubation analyses, but temperature differentials between Alternative 4A and the NAA were used in the rearing and migration analyses. The spawning and egg incubation analyses for multiple species (WR, SR, FR, GS, and WS) use the degree-days analysis to acknowledge temperature exceedances. Temperature thresholds were not identified and acknowledged even though there are temperature thresholds that can be used, such as EPA recommended weekly average daily maximums for salmonid rearing (61 degrees F, Table 3 page 25).
11.3.5-1	26-38	The new analysis AQUA-218 evaluates freshwater flow downstream of the Delta by comparing freshwater flow differences among baselines and alternatives and then to tidal flows but does not incorporate the biological significance of freshwater flow through the Delta on bay and estuarine species. The conclusion that there is no biological effect because freshwater flow is orders of magnitude lower than tidal flows and doesn't vary among alternatives does not recognize the salinity-abundance relationships established in the estuary. The salinity gradient (measured by X2) is a function of freshwater flow into the tidally influenced portion of the estuary. The lack of variation of freshwater outflow through the Delta among alternatives reflects the minimal differences in proposed operational alternatives. Few of the proposed operational alternatives substantially increase freshwater flow to improve conditions for and abundance of resident and migratory fishes consistent with recommendations from the scientific community.

11.3.5-4	6-9	Two potential biological effects were evaluated qualitatively: production and fish biomass. The BDCP is expected to increase production (phytoplankton and zooplankton) in the Delta and Suisun Bay as a result of habitat restoration (Appendix 5E, Habitat Restoration). Does this apply to Alternatives 4A, 2D, and 5A or just the original BDCP Alternatives 1-9?
11.3.5-4	17-20	Please explain Impact AQUA-218 and why the NEPA and CEQA Effects determinations are inconsistent with the Bay Midwater Trawl striped bass abundance estimates provided for AQUA 203a. AQUA 203a estimates a 7% drop in striped bass abundance and a 5% decline in bay shrimp under H3 operations.
11.3.5-8		AQUA 219: The selenium analysis does not include a table of estimated changes to residence times in the south Delta or discuss how these residence times may change selenium levels in clams and benthic feeding fishes, such as green sturgeon and Sacramento splittail. We recommend that such information be included in the SDEIS and, if it is provided elsewhere in the document, the page numbers be provided in this section.
11.3.5-19		AQUA-201a: The effects of entrainment on striped bass and American shad from alternatives that include north Delta intakes could be adverse due to substantially increased entrainment of larval life stage. Particle tracking modeling results for ten monthly periods during March-June generally suggest that overall entrainment of early life stages (eggs and larvae) of striped bass and American shad originating in the Sacramento River upstream of the Plan Area and moving downstream into the Plan Area could increase under most alternatives relative to NAA (Table entrainment 1). Potential entrainment for striped bass and American shad larval fish under Alternative 4A was 14.3% more than under the No Action Alternative (a 220% relative increase relative to future conditions). The SDEIS should explain why this impact is not identified as adverse in the Impact AQUA-201a given the information presented.
11.3.5-22		Thank you for providing an analysis for non-covered aquatic species of primary management concern (AQUA-203a). This analysis addresses, in part, some of the downstream impacts we identified as missing in the DEIS by including bay shrimp. It is also very useful to have it for other fishes, such as as striped bass, American shad, threadfin shad, hardhead, Sac-SJR roach, tule perch, large mouth bass, and bay shrimp.

11.3.5-22 to -34		For Impact AQUA-203a for American shad, striped bass, and bay shrimp, the NEPA Effects determination should be clear that an increase in abundance relative to the NAA baseline translates to a smaller abundance loss when compared to the existing conditions baseline.